

0002

M/003/0082



TASK 3050
EC: Lynn
Leslie
Tom
Wayne

June 29, 2009

Lynn Kunzler
State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
P.O. Box 145801
Salt Lake City, Utah 84114-5801

RE: Corinne Quarry Mine No. M/003/0082 -Corrections to NOI as per DOGM Comments

Dear Mr. Kunzler,

Attached please find changes I have made to the Large Mine Permit application subject to the comments made in your initial review of that application dated, May , 2009. These changes should clear up any questions you may have had regarding that application and clear up all errors noted in that review. We appreciate your prompt attention to this permit application.

Sincerely,

Brent R. Summison

Aggregate Resource Manager

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JUN 29 2009

DIV. OF OIL, GAS & MINING

0002

**Notice of Intention
To Begin a Large Mining Operation**



Geneva Rock Products, Inc.

Corinne Quarry

DOGM NO. M/003/0082

Submitted by:

Geneva Rock Products, Inc.

1565 W. 400N.

Orem, UT 84057

To:

Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84114-5801

Geneva Rock Products – Corinne Quarry – NOI

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Figure 2: Land Ownership Map

Figure 3: Existing Surface Facilities and Disturbance, April 2008

Figure 4: Mine Plan Map

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Figure 5: Reclamation Plan Map

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Figure 7: Utah Water Rights Map

Figure 8: Soil Map

Figure 9: Geology Map

R647-4. Large Mining Operations

R647-4-101. Filing Requirements and Review Procedures

This NOI is submitted to the Utah Division of Oil, Gas and Mining (DOGM) in compliance with part R647-4 of the Utah Minerals Reclamation program by Geneva Rock Products, Inc.

The proposed quarrying operation is located in Box Elder County, Utah, on a 230-acre parcel owned by Geneva Rock Products, Inc. (Geneva). The site has been mined for alluvial sand and gravel since the 1930's by various companies and Box Elder County Road Department since the 1960's. Geneva is currently permitted by Box Elder County to operate the pit under a grandfathered use permit. Geneva proposes to include by this NOI the quarrying of limestone in its future operation. The proposed quarry is located in Sections 23 and 24, of T10S, R4W, SLBM.

R647-4-102. Duration of the Notice of Intention

It is understood that, when approved, this NOI, including any subsequently approved amendments or revisions, remains in effect for the life of the mine. However, Geneva acknowledges that the Division of Oil, Gas, and Mining (DOGM) may review the permit and require updated information and modifications when necessary.

R647-4-103. Notice of Intention to Begin Large Mining Operations

Geneva's NOI addresses the requirement of the rules listed in this section as follows:

- 104. Operator(s), Surface and Mineral Owner(s)
- 105. Maps, Drawings, and Photographs
- 106. Operation Plan
- 108. Hole plugging Requirements
- 109. Impact Assessment
- 110. Reclamation Plan
- 112. Variance
- 113. Surety

R647-4-104. Operator, Surface and Mineral Owners

1. Mine Name: Corinne Quarry
2. Operator: Geneva Rock Products, Inc.
1565 West 400 North
Orem, Utah 84057

Phone: 801-765-7800
Fax: 801-765-7830
Email: <http://www.genevarock.com/>

Type of Business: Corporation
Utah Business Entity No.: 570716-0412
Local Business License No.: 639
Issued by: Box Elder County

Registered Utah Agent: Al Schellenberg
1565 West 400 North
Orem, UT 84057
Phone: 801-765-7800
Fax: 801-765-7830
Email: aschellenberg@genevarock.com
3. Permanent Address: Geneva Rock Products, Inc.
1565 West 400 North
Orem, UT 84057
Phone: 801-765-7800
Fax: 801-765-7830
Email: <http://www.genevarock.com/>
4. Contact Person for Permitting, Surety, Notices:
Mike Edwards
Geneva Rock Products, Inc.
P.O. Box 538
Orem, Utah 84059
Phone: 801-281-7890
Fax: 801-641-2117
Email: medwards@genevarock.com

5. Location of Operation: East ¼ Section 23, T10N, R4W, SLBM
Section 24, T10N, R4W, SLBM
6. Ownership of Land Surface: Geneva Rock Products, Inc.
1565 West 400 North
Orem, UT 84057
7. Owners of Record of Mineral to be Mined:
Geneva Rock Products
1565 West 400 North
Orem, Utah 84057
8. BLM Lease or Project File Numbers:
None
9. Adjacent Land Owners: John Ferry
905 North 6800 West
Corinne, UT 84307

Vesta Ferry
905 North 6800 West
Corinne, UT 84307

Nicoli G. Nicholas, SR
4705 T, Street
Sacramento, CA 95819
10. Have the land, mineral, and adjacent owners been notified in writing?
With the exception of Nicoli G. Nicholas, adjacent owners
are previous owners of the quarry property and are fully
aware of the intended use.
11. Does Permittee/Operator have a legal right to enter and conduct mining operations on
the land covered by this notice? Yes.

R647-4-105. Maps, Drawings, and Photographs

Maps, drawings, and photographs are provided as requested on Form MR-LMO. The base map Checklist is referenced below by letters and parentheses (a,b,c,d,or e) that represent which of the bullet items is addressed on each map.

105.1.Base Maps: Figures 1 and 2

Figure 1 Base and Mine Location Map and shows the mine area and surroundings and is printed at a scale of 1"=2000'. It shows streams, springs, water bodies, road, building, topography as required in (B). It shows previously disturbed areas and differentiates between "disturbed bonded areas" and those areas that are disturbed but are not the reclamation and/or bonding responsibility of Geneva as required in (d) There are no known underground workings within the proposed permit area as suggested in (d) of Form MR-LMO.

Figure 1a Additional Base and Location Map shows some of the topographic features of the area a little clearer than Figure 1. It is printed at a scale of 1"=5800'.

Figure 2 Land Ownership Map is printed at a scale of 1"=2400' and shows the property boundaries, surface ownership of the mine and adjacent lands, and access routes.

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105.2. Surface facilities maps: Figures 3 and 4

Figure 3: Existing surface facilities & ALTA survey, is printed at a scale of 1"=200' and shows existing surface facilities, ditches, and fences that pass through or near the lands to be affected. There are no test borings, pits, or boreholes. There are no known utilities located within the mine boundaries and accordingly none are shown on this map.

Figure 4: Mine Plan Map, is printed at a scale of 1"=200' and shows drainage control structures, topsoil storage areas. There is no overburden or waste rock, thus no storage areas are shown. No waste water is generated in this mine, therefore no discharge areas are shown. Storm water is initially impounded in a retention pond near the entrance of the quarry then later against the high wall in the back of the quarry. After the quarry has been sufficiently developed to hold the water against the high wall the retention pond will be used as a reservoir for the wash plant.

Figure 4a: Phasing Map, is printed at a scale of 1"=400' shows the phased progression of the mine and the respective bonded acreage of each phase.

105.3. Reclamation Treatments: Figure 5

Figure 5 is a Reclamation Treatments map. This map is printed at a scale of 1"=300'. It shows details about reclamation treatment areas, including what disturbance, such as high walls, topsoil stockpiles and roads, will be reclaimed. A border outlining the extent of the area to be

reclaimed vs. the affected area is shown. While no topsoil will be spread on the high walls because they are too steep to revegetate. The benches will be covered with topsoil and re-seeded.

All high walls will be left at a benched 1H:1V. These areas are shown on the map. The unconsolidated top layer of alluvium will be sloped at 2H:1V. All floor slopes will be 2H:1V or less.

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104.4. Additional Maps:

Figure 6 shows cross-sections of the reclaimed pit.

Figure 7 is a Utah Division of Water Rights map showing area water rights.

Figure 8 is a soils map.

Figure 9 is a Geology map.

R647-4-106: Operation Plan

106.1. Mineral to be Mined

The Corinne quarry will produce crushed and/or screened aggregate for construction materials including concrete and asphalt.

106.2. Type of operation to be conducted

Geneva Rock Products, Inc. (Geneva) primarily extracts aggregate rock for use as road base, landscape rock, and other construction products. The projected future use of the aggregate will also include concrete and asphalt production.

Current operations and storage areas of the quarry are shown in the color photographs in Appendix A and on maps in Figures 1 through 4a

Mining Operation

Geneva will remove limestone rock from the active mine area by drilling, blasting, and dozing methods. New disturbance occurs at the top and sides of the hill slope. The hill slope will be developed in phases, shown in order of development on Figure 4a. Each numbered area

contains enough material to last for roughly 10 to 15 years. Mining may extend into the proceeding area prior to completely mining out the previous area in order to maximize safety, rock quality, and production needs. All haul roads will be confined within the disturbance boundaries.

Rock is removed by drilling and blasting to release a "lift" of rock approximately 50 feet deep and up to two acres in size. Extraction of this loosened rock occurs by sequentially working downward through the exposed rock. When all blasted rock is removed from the first lift, another blast is set to free this lower lift of rock for removal and processing. Rock is removed from the working face or feed zone; with a loader and either placed in dump trucks or transported directly to the processing area where the rock is separated and adjusted to specific sizes for processing at one facility. The facility is a crushing and sizing operation. Sizing for the final product is determined by specifications provided by customers.

Crushing Operation

Once the rock is removed from the working face (see Figure 4), the material is brought a short distance to the "jaw crusher" by a front-end-loader where it is broken down to 6-8" for initial sizing. The crushed rock is moved by conveyor to a 3,000 to 5,000 CY surge hopper. Aggregate is metered from the surge hopper, by conveyor, to the secondary crushing unit, which may either be a primary horizontal impact crusher, or a roller cone crusher. The secondary crusher crushes the aggregate to 2" minus. Conveyors then direct the aggregate to 3-deck sizing screens to split the aggregate stream into three different product sizes.

Any oversize aggregate not passing one of the three screen sizes is directed by conveyor to a tertiary crusher, which is either an impact crusher or a fine crushing, roller cone crusher. The aggregate from the tertiary crusher is then directed back up to the 3-deck screens in a closed circuit. The crushing plant is controlled by motor control circuitry located in the control tower manned by the crusher operator.

The finished products come out of the crushing plant and are conveyed or moved by loaders to the aggregate storage piles where they are stored until sold. When an order is placed for a particular size aggregate, it is loaded into trucks for delivery to the customer or transported to either the concrete plant or asphalt plant for further processing. All conveyors are equipped with spray bars that spray water at drop points to control fugitive dust.

Blasting Practices

Blasting will be used in the mining process at the Corinne Quarry. Blasting is not conducted by Geneva, but is subcontracted out to a qualified company trained in blasting design and

practices. All blasting will be done in accordance with MSHA regulations. Unless needed, no seismic monitoring of blasting will be done at the Corinne Quarry.

The mine will conduct blasting up to 50 times per year. Blasting rounds include 25 ounce down-hole primers, detonator cords, and Ammonium Nitrate-Fuel Oil (ANFO) pellets. Typical blasting design is 50 to 100 holes drilled 50-100 feet deep. It is estimated that each hole will be set on a 13ft. X 13 ft. grid.

Before blasting occurs, the tower sounds a warning siren to alert all personnel of impending blast; at which time all personnel and equipment are removed from quarry area. The siren is then sounded again and the blaster turns on his emergency flashing lights. The blast is then detonated. No one enters the blasting zone until the blaster gives an all-clear whistle.

Concurrent Reclamation

No reclamation will take place within the first 20-year block. Increased production will force utilization of all additional mined-out acres for staging, sorting, or processing. Reclamation will take place once the quarry is mined out. Reclamation is discussed in Section 110 below.

106.3. Estimated Acreage

Approximately 229 acres will be disturbed over the life of the mine. This figure includes all access roads, storage piles, processing areas, mine areas, and affected area. The area currently being mined for alluvial sand and gravel is being mined under a grandfathered status by Box Elder County. The gravel pit has been in existence since the 1930's. The area of present disturbance includes about 66 acres. The Geneva will confine its mining activities to 144-acres for the next 15 years.

Table 1: Areas to be affected during the next 15- years, and over life of Mine

Area	Total Affected Acreage	Disturbance largely within Already Affected Lands / Notes	Total Cubic Yards of Topsoil Salvaged
Existing Mine Disturbance	66	Pre-existing disturbance	0
Areas of new mining disturbance	58	To be disturbed in 1-15 years	46,786
Overburden and waste dumps	0	All mined materials are processed and sold	0
Ore and product	0	20 acres – within existing disturbance	0

stockpiles			
Access/haul roads and topsoil stockpiles located in existing pit	0	The present acreage of haul roads in the pit will be maintained	0
Tailings Disposal	0	No tailings are created	0
Sediment Control Ponds	1	Run-off is contained in bermed work area or catch basins in existing disturbance	0
Total 15-year disturbance	144		46,786
Phase 2	42	To be disturbed during 10-25 years	40,656
Phase 3	22	To be disturbed during 25-30 years	17,747
Phase 4	22	To be disturbed during 35-40 years	33,073
Total disturbance – life of mine	229		138,262

106.4. Nature of material, including waste rock/overburden, and estimated tonnage

Ore

The annual amount of ore generated is greatly dependent on quarterly demand. Historical output of the alluvial pit was approximately 30,000 tons (17,000 CY) per year. Recent development in the area, including the Proctor & Gambel warehouse site, is increasing demand for aggregate product in the area. We project the average annual production for the next five years to average 750,000 tons (395,000 CY) per year.

Historic Mining and Disturbance Area Summary

Mining has occurred at the Corinne Pit since the 1930's. Most of the presently disturbed area was disturbed prior to the Utah Mined Reclamation Act of 1975, Section 40-08 of the Utah Code. These lands are also known as "Pre-law disturbance" and are labeled with a red line on **Figure 1, Base Map**. Also, mining of alluvial sand and gravel falls outside the purview of the State of Utah, Division of Oil, Gas and Mining.

Geneva Rock took ownership of the Corinne pit in December of 2007. Various companies have mined sand and gravel from this location through the years. Most of the uses were project specific and used mainly for DOT highway projects in the Corinne – Brigham City area. In more

recent years the pit has been used by Box Elder County Road Department as road base supply for southern Box Elder County.

106.5. Soils

As stated previously, mining has been conducted on this site since the 1930's. No soil has been salvaged to-date. ~~All existing top soil will be removed and~~ stored in a stable condition, and used for reclamation of disturbed areas.

Deleted: Where feasible, all top soil material will be

Soils map units are shown on **Figure 8, Soils**. Samples of the top 12 inches of soil was collected at Point SP-1, on a southeast facing slope and SP-2 from a south facing slope. These samples were taken to characterize soils in preparation for future soil salvage. The sample locations are shown on **Figure 8**. Analytical sampling results are shown in **Table 2** below.

Table 2: Analytical Results of Fall, 2008 Soil Samples, Top Twelve Inches of Soil*

Soil Parameter	Results TP#1	Results TP#2	Units
Texture	Clay Loam	Loam	Uniform Soil Classification
pH	6.89	6.98	@25°C, pH units
EC(conductivity)	520	940	umhos/cm
SAR(sodium absorption ratio)	.24	.39	
Percent Organic Matter	1.71	4.67	Total Volatile Solids as % of total sample
CEC (Cation exchange capacity)	27.39	14.74	Meq/100g-dry
Alkalinity	6.89	6.98	mg/100g-dry
Total Nitrogen	175.70	1600.40	ppm
Nitrate Nitrogen	7.35	18.48	ppm
Total Phosphorus (as P)	2.62	10.59	ppm
Potassium (as K ₂ O)	250.18	1005.12	ppm

*Top twelve inches was all O and A horizon.

The texture of both soil samples were consistent from top to bottom. Below this (at about 15inches) the soil became significantly more gravelly/cobbly. Sample #1 was taken from the area mapped as SHE or Sandall-Rock outcrop complex, 3-30 percent slopes. Sample #2 was taken from the area mapped as SIE or Sanpete Gravelly Silt Loam, High Rainfall, 10 to 30 Percent. Compared to the typical profile (shown in **Table 3 & Table 4** below), these soil samples showed a little deeper A horizon.

Table 3: Soil Description for Sandall-Rock outcrop complex, 3-30 percent slopes

Depth in inches	Texture	Use
0-2	Cobbly Silt Loam	Save for topsoil
2-7	Cobbly Silt Loam	Save for topsoil
7-16	Gravelly Loam	Use for Product
16-24	Very Cobbly Loam	Use for Product
24-35	Very Cobbly Loam	Use for Product
35-45	Unweathered Bedrock	Use for Product

Table 3b: Soil Description for Sanpete Gravelly Silt Loam, High Rainfall, 10 to 30 Percent

Depth in inches	Texture	Use
0-5	Gravelly Silt Loam	Save for topsoil
5-10	Gravelly Silt Loam	Save for topsoil
10-19	Very Gravelly Loam	Use for Product
19-31	Extremely Gravelly Sandy Loam	Use for Product
31-56	Extremely Gravelly Silt Loam	Use for Product
56-65	Extremely Gravelly Loam	Use for Product

The variation in soil depth between the soil samples and the typical profile indicate typical soil depth differences between south and north facing slopes. In some places especially the RS and GP soil map units there may be little or no soil available.

In addition to the SHE soil map unit that comprises the majority of the acreage to be disturbed, the SIE soil map unit also covers an appreciable percentage of the area. The other soil map units covering a small minority of the acreage that will be disturbed are MIE, SEG, SID, WNB, PVC. All of these units have at least 6" of topsoil on them. The SHE and SIE soil map units are described below.

The SHE soils occur between 4,350 to 6,800 feet elevation. Mean annual precipitation is 11 – 14 inches. The soil map unit is generally 80% Sandall and similar soils and 15% rock outcrop. The soil is made up of colluviums and residuum derived from limestone, sandstone, and quartzite. Lithic contact occurs below about 20 to 40 inches. Soils tend to be well drained, and may be non-saline to slightly saline (2.0 to 8.0 mmhos/cm). Soils may have up to 60 percent

calcium carbonate. Potential vegetation includes Crested Wheatgrass (Hycrest), Pubescent Wheatgrass, Squirreltail Bottlebrush, Bluebunch Wheatgrass, Russian Wildrye, , Alfalfa, Small Burnet, Forage Kochia, Wyoming Big Sagebrush, Fourwing Saltbush.

The SIE soils occur between 4,350 to 5,300 feet elevation. Mean annual precipitation is 8 – 14 inches. The soil map unit is generally 85% Sanpete, high rainfall and similar soils. The soil is made up of alluvium, colluviums and lacustrine deposits derived from limestone. Lithic contact occurs below about 80 inches. Soils tend to somewhat excessively drained, and may be non-saline (0.0 to 2.0 mmhos/cm). Soils may have up to 70 percent calcium carbonate. Potential vegetation includes Crested Wheatgrass (Hycrest), Pubescent Wheatgrass, Squirreltail Bottlebrush, Bluebunch Wheatgrass, Russian Wildrye, , Alfalfa, Small Burnet, Forage Kochia, Wyoming Big Sagebrush, Fourwing Saltbush.

106.6. Plans for protecting and re-depositing soils

It is estimated that 78 acres of additional mining disturbance will occur in the next 15 years. At a 6 inch salvage depth, approximately 46,786 cubic yard of topsoil (see table 1) will be salvaged from this area. Depending on the location of the excavation each year (i.e. south facing or east and west facing slopes), actual soil salvage by year may be more or less than that stated above. All stockpiles will be surrounded by a berm to protect against soil loss.

Topsoil and vegetation (made up mostly of grasses, and brush) will be removed together with bulldozers, front-end loaders, and 14-ton to 45-ton dump trucks. Vegetation at the mine site will add negligible volume to soil stockpiles. Over the life of the mine, approximately 163 acres of additional disturbance, and as much as 131,487 cubic yards (CY) of soil will be salvaged for reclamation.

More detail on topsoil stripping and protection is included in Sub-section 109.3 below.

106.7 Existing Vegetative communities to establish re-vegetation success

According to NRCS range data for the Box Elder County, Utah, Eastern Part Survey (NRCs 2008), which includes the Study Area (See Figure 8, Soils), vegetation production on the mine acreage ranges from 850lb/acre in a favorable year to 350 lb/acre in an unfavorable year. The designated ecological site name is Upland Stony Loam.

Potential plant species for the Eastern Box Elder County area, based on NRCS data, are shown in Table 4 below

Table 4: NRCS Potential Plant Species for Sandall & Sanpete Soil Map Units

Common Name	Scientific Name
Blue Bunch Wheatgrass	<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>
Mountain Big Sagebrush	<i>Artemisia tridentata</i> vaseyana
Single Leaf Pinyon	<i>Pinus monophylla</i>
Antelope Bitterbrush	<i>Pershia tridentata</i>
Black Sagebrush	<i>Artemisia nova</i>
Indian Rice Grass	<i>Achnatherum hymenoides</i>
Mutton Grass	<i>Poa fendleriana</i>
Utah Service Berry	<i>Amelanchier utahensis</i>
Longleaf Hawksbeard	
Needle and Thread	<i>Stipa comata</i>
Nevada Joint Fir	<i>Ephedra nevadensis</i>
Utah Juniper	<i>Juniperus osteosperma</i>

This list covers plant species found in various areas of Eastern Box County however the Little Mountain area receives appreciably less precipitation than along the front range of the Wasatch Mountains. There are virtually no tree species within the Geneva property boundary and the only shrub species listed above that lives there is Black Sagebrush. On March 18, 2008 Ron Kass, Ph.D., a Professional Wet Lands Scientist visited the site and conducted an ocular observation of the plant species growing at that time of year. Those plant species are shown in Table 4a.

Table 4a: Plant Species observed by Ron Kass at mine site on 3-18-08

Common Name	Scientific Name
Purple three awn	<i>Aristida purpureus</i>
Big rabbitbrush	<i>Corythoanmus nauseosus</i>
Broom snakeweed	<i>Gutierrezia sarothrae</i>
Slender Wheat Grass	<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>
Black Sagebrush	<i>Artemisia Nova</i>
Currant	<i>Ribes</i> spp.

The Big rabbitbrush, Broom snakeweed and Purple three awn were the most common varieties of vegetation existing at the mine site. At the time this visit was made it wasn't understood that a quantitative vegetative study needed to be conducted for this application. Geneva commits to having a completed vegetative study submitted to DOGM by June of 2009.

106.8. Depth to Groundwater, Overburden material, and Geologic Setting

Groundwater

No water wells are located within a mile radius of the Corinne Pit. A copy of the Utah State Division of Water Rights well location map is attached as **Figure 7**, verifying that no recorded water wells exist in the vicinity of the pit.

Ground water has not been encountered by any of the current or previous mining activities. Some of those activities have extended to the same depth as the proposed final build-out elevation and no water has been encountered. The previous property owner developed some springs that are in adjacent to SR-83 just outside our proposed mining boundaries. They are thermal springs high in salt and sulfur content. The elevation and location of these springs is noted on Figure 3.

Geneva has a lease arrangement with John Ferry to use water from the springs for dust control in the pit. The use of water from the springs is authorized by water right number 29-4351. The elevation of the water in these thermal springs is a little above the final build-out elevation of the quarry but they are isolated and shouldn't affect the mining operation. The fact that adjacent mining has extended below the elevation of these springs and encountered no water is an indicator that the springs are confined to a vertical fault in the bedrock. **Figure 7** shows no recorded wells on the subject property or in the neighboring area.

Deleted: water wells

Overburden Material

Other than the top six inches of material set aside for the reclamation purposes as topsoil, all other material is sold as various aggregate products. No overburden, reject materials, or waste material are produced.

Geology of the area

The Geology underlying the alluvial sand and gravel formation is made up of Mississippian Lodgepole Limestone and Devonian Hymum Dolomite. As shown in Figure 9, Quaternary surficial alluvium and colluviums, formed from alluvial outwash from the Little Mountain, is exposed at the top and south faces of the permit area. These deposits run north along the full length of the Little Mountain area.

There is roughly 700 feet of elevation differential between the ridge top to be mined and the base elevation of the mine area to the southeast where the crusher facilities are currently located. Geneva does not plan to excavate below the 4,225 foot elevation, although the limestone rock extends below this level.

106.9. Location and sized of ore and wasted stockpiles, tailings and treatment ponds, and discharges

Waste/Overburden Stockpiles

Raw materials consist of rock that has been removed from the hillside. Other than the top six inches of material that is set aside for reclamation purposes as topsoil, all rock material removed from the hillside is used to create aggregate products according to customer specifications. No waste rock is generated.

Material Stockpiles

There are several stockpiles of sorted and sized rock products stored on site. The general, current, and future locations of these stockpiles are shown on **Figure 4**. A list of stockpiles and maximum expected volume of each can be found in **Table 6** below.

Table 6: Stockpiles and Estimated Maximum Volumes for the Corinne Mine

Stockpile Material	Maximum Volume	Stockpile Material	Maximum Volume
Road Base (1" dia.)	100,000T	Slurry Sand (Type 2)	5,000T
Fines (0.25" dia.)	50,000 T	Drain Rock	30,000T
Sub-base (3" dia.)	50,000 T	Basket Rock (8" dia.)	10,000 T
Chip Rock (0.5" dia.)	30,000 T	Concrete Rock	50,000T
Chip Rock (0.38" dia.)	50,000T	Asphalt Rock (0.75" dia.)	40,000T
Slurry Sand (Type 1)	5,000T	Landscape Rock	5,000T
Natural Fines (0.25" dia.)	50,000T	Concrete Sand	30,000T

Tailings

No Tailings will be produced at this mine.

Water Storage/Treatment Ponds

A pond will be constructed near the pit entrance that has the capacity to hold the runoff from a 10-year, 24-hour event as shown on figure 4. Estimated runoff from areas above and within the current mine for a 10-year, 24-hour event is estimated to be 3.7 acre feet. Water has been and currently is adequately contained within the working areas of the mine.

Water for dust suppression is provided by the warm springs located on site.

Discharges

Before a concrete batch plant is established at this facility a water line will be installed along SR-83 bringing fresh water to the Corinne Quarry. Installation of the batch plant is not anticipated any sooner than 2015. All water used in making concrete is held in the concrete slurry and sold as part of the ready-mix product. All water used for cleaning out cement trucks is recycled.

R647-4-107. Operation Practices

As required, the relevant Operation Practices stipulated in R647-4-107 will be followed.

R647-4-108. Hole Plugging Requirements

There are no plans for future drilling within the permit area for exploration. If drilling for any reason other than blast hole drilling is planned in the area, Geneva will notify DOGM and the following procedures will be employed.

- Drill holes shall be properly plugged as soon as practical and shall not be left unplugged for more than 30 days without approval by DOGM.
- Dry holes and non-artesian holes that do not produce significant amounts of water may be temporarily plugged with a surface cap to enable Geneva to re-enter the hole for the duration of set operations.
- Surface plugging of drill holes outside the mine area shall be accomplished by setting a nonmetallic permaplug at a minimum of five (5) feet below the surface, or returning the cuttings to the hole and tamping the returned cuttings to within five (5) feet of ground level. The hole above the permaplug or cuttings will be filled with a cement plug. If cemented casing is to be left in place, a concrete surface plug may not be required if a permanent cap is secured on top of the casing.
- Drill holes that encounter water, oil, gas or other potential migratory substances and are 2.5 inches or greater in surface diameter will be plugged in the subsurface to prevent the migration of fluid from one stratum to another. If water is encountered, plugging shall be accomplished as outlined below.
- If artesian flow (i.e. water flowing to the surface from the hole) is encountered during or upon cessation of drilling, a cement plug will be placed to prevent water from flowing between geologic formations and at the surface. The cement mix will consist of API Class A or H cement, with additives as needed, and will weigh at least 13.5 lbs./gal. It will be placed under the supervision of a person qualified in proper drill hole cementing or artesian flow.
- Artesian bore holes will be plugged as described prior to removal of drilling equipment from the well site.

- If the surface owner of the land affected desire to convert an artesian drill hole into a producing and/or monitor well, the landowner will provide written notification to DOGM accepting responsibility for the ultimate plugging of the drill hole.
- Holes that encounter significant amounts of non-artesian water shall be plugged by: 1) placing a 50-ft cement plug immediately above and below the aquifer(s) or filling from the bottom up (through the drill casing) with a high grade bentonite/water slurry mixture. The slurry shall have a Marsh Funnel viscosity of at least 50 seconds per quart prior to the adding of any cuttings.

R647-4-109. Impact Statement

109.1. Surface and ground water systems

Surface Water

No perennial streams or intermittent waters have been or are expected to be impacted by mining operations at the Corinne Quarry. Any precipitation and/or run-off into the quarry from sheet flow, which enters the quarry from the hillside above, or, if intercepting quarry access roads to the south of the quarry, flows down these roads via ditches and into the quarry. Initially, this water will be channeled to a storage pond near the mine entry that has the capacity to hold 5-acre feet of water. Because this feature is so short and has no defined channels, a generalized run-off calculation was developed for the phase I area including the area above the active mine that drains into it (refer to correspondence in back of Appendix D) and is summarized below:

Precipitation = 0.09 inches

Design Event = 10-year, 24-hour (NOAA Atlas 14)

Curve Number 89 (Arid to semiarid rangeland: grass, minor low brush, fair condition)

Soils = C Gravel/Rock

Estimated runoff = 0.31 inches/acre

Drainage area = 144 acres

Total volume of run-off = 3.7 acre feet

At full mine development (229 acres, no reclamation) total volume of run-off into the quarry = 25 acre feet

Once inside the quarry, water disperses across the gently sloped quarry floor. Initially, as phase I is begun the storm water will be contained in the detention pond. Then as the quarry is developed, the grade will slope towards the mine face and capacity for containment will increase as the mine develops. Areas used for stockpiles, crushers and processing facilities are graded to be higher than surrounding areas to prevent contamination of storm water within the quarry. At final build-out the quarry floor will cover approximately 150 acres and will be an average of 12 feet below the elevation of Hwy 83 and will have the capacity to contain roughly 1,804 acre feet of water. This is more than adequate to contain all storm water runoff including 100-year storms.

Surface water flowing off slopes to the west and east of the active quarry area drain away from disturbed lands.

If erosion or sedimentation is noted on lands where turn-outs are located, Geneva commits to using appropriate water and erosion control measures. This includes, but is not limited to: properly installed dirt berms, small (<0.1 acre-foot) sediment retention sumps, and rock check dams.

Ground water

The elevation of ground water is below 4220 ft, as revealed by excavation made in the middle of the existing pit. The two developed springs on the perimeter of the proposed mining plan as shown on **Figure 2**, are isolated and do not reflect the ground water level. No ground water has been encountered during current or previous mining activities.

The major activities on the mine property that could impact groundwater if residues were to reach this resource are: 1) blasting (will occur up to 50 times per year); 2) presence of diesel fuel, lubricants, etc. used in the heavy equipment used at the mine, 2) presence of additives used in the concrete batch plant, and 4) human wastes, which are processed through chemical toilets, which are serviced regularly. In summary:

- Good housekeeping practices and careful operating procedures are used to minimize fuel and lubricant spills. Fuel and lubricants are stored in tanks that have secondary containment that protect against spills.
- Crushing equipment and vehicles are regularly maintained to prevent lubricant leaks and other malfunctions.

- The quantities of blasting materials used create negligible quantities of nitrates that, in the unlikely event that they reached the groundwater, would be well below water quality limits.

109.2. Wildlife habitat and endangered species

The permit area ranges from approximately 4,975 feet in elevation on the north side to 4,260 feet in elevation on the south side. The quarry is being excavated into a sub-ridge on the south side of Little Mountain, located immediately north of the Great Salt Lake.

Maps in the Utah Conservation Database (UCD), located at <http://dwr.state.nv.utah.gov/ucdb/>, indicate the permit area contains year-long habitat for mule deer, prong horn, but no elk, or moose.

The UCD website lists five Threatened or Endangered (T&E) species that are present in Box Elder County and 19 Species of Special Concern (SPC) that could be found within the boundaries of the Little Mountain area, including the Corinne Pit. The T&E species are listed below in Table 7, none of the SPC species listed are found with the permit area.

Table 7: Box Elder County Federal Threatened and Endangered Species

Common Name	Scientific Name	Status*	Habitat present at Corinne Pit
Fat-whorled Pondsail	Stagnicola bonnevillensis	C	No – to dry
Lahontan Cutthroat Trout	Oncorhynchus clarkia henshawii	T	No aquatic species
June Sucker	Chasmistes liorus	E	No aquatic species
Yellow-billed "Cuckoo	Coccyzus americanus	C	No-too far north
Gray Wolf	Canis lupus	E Extirpated	No - extirpated

*T=Threatened, E+ Endangered, SPC = Species of Concern

A well known Utah biologist, Ron Kass was contacted and requested to study the area to see if any T&E or SPC species are found on the permit area. On March 8, 2008 Ron conducted a inventory of the area and found no T&E species or habitat conducive for T& E species. A copy of his letter verifying that inventory is attached in the correspondence section as (Appendix D).

109.3 Existing Soil and Plant Resources

All of the area currently operated by Geneva was disturbed by previous mining operations, all of which were conducted before the saving and stockpiling of topsoil was a common practice, or before current regulations required it (Pre-Act disturbance). Therefore, no soil stockpiles

exist on the property. However, from this point forward, soil will be salvaged as new areas are disturbed.

After 15 years of mining, approximately 46,787 CY of soil will be stored from the mining operation for reclamation. A total volume of approximately 138,262 CY of soil will be available for reclamation once the mine is fully developed as shown in **Figure 5**.

All topsoil piles will have 1.5H:1V slopes and a flat to slightly arched top. A 1-foot high X 3-foot wide berm with interior ditch will be constructed around each topsoil stockpile area using material bucked up from the land surface where the topsoil pile is located. The ditch will catch and retain any soil that sloughs off the stockpile, and the berm will prevent contamination and erosion from storm water.

Two topsoil stockpiles will be constructed in the mining area during years 1-15. They will be located adjacent and parallel to SR-83 the east and west sides of the pit entrance at an elevation of about 4251.

By the end of the 15th year the east topsoil pile will measure approximately 94 feet X 680 feet and will be up to 10 feet high, containing approximately 20,000 cubic yards of soil. By the end of the 10th year the west topsoil pile will measure about 94 feet X 860 feet and 10 feet deep, containing about 27,000 cubic yards of soil.

Substitute topsoil material may be developed to augment the minimal topsoil resources available. This substitute material would include a mix of natural or crushed fines, small rock, and pit run material; imported manure and/or organic matter (i.e. agricultural field refuse, wood chips, bran or wheat chaff); and fertilizer to enhance fiber breakdown. This material would be stored and spread separately from actual topsoil resources.

The newly stockpiled soil will be seeded in the fall of each year it has been enlarged with a quick-growing cover of grass and legumes in order to minimize erosion. This seed mix, listed in Table 8, will be broadcast at a rate of 14.5 lbs./acre PLS (pure live seed).

Table 8: Seed Mix for Topsoil Stockpiles

Seed Species		PLS* Pounds Per Acre
Scientific Name	Common Name	
<i>Elytrigia intermedia</i>	Intermediate Wheatgrass	2.5
<i>Pseudoroegneria spicata</i>	Bluebunch Wheatgrass	2.5
<i>Achnatherum hymenoides</i>	Indian Rice Grass	2.00
<i>Elymus elymoides</i>	Bottlebrush Squirreltail	1.50

<i>Poa sandbergii</i>	Sandberg Bluegrass	1.50
<i>Medicago sativa</i>	Alfalfa	0.75
<i>Agropyron cristatum</i>	Crested Wheatgrass	2.5
<i>Hedysarum boreale</i>	Northern sweetvetch	1.25
Total		14.50
*PLS = pure live seed		

The size of the area stripped in front of the mining and storage areas will be minimized to limit dust generation and the establishment of noxious weeds. At the same time, the stripped area will be large enough to allow equipment to operate on the stripped lands, and contain within the stripped area all fly-rock that could occur from blasting. Please see subsections 106.5 and 106.6 for more information about topsoil.

All areas disturbed by Geneva (the bonded area) will be reclaimed at the end of mining by regarding (ripping compacted surfaces where necessary), topsoiling, and re-seeding as described in Section 110, with the goal of creating a self-renewing, perennial vegetation cover similar to native conditions.

109.4. Slope stability, Erosion Control, Air Quality, Public Health and Safety

Slope Stability

The rock at the Corinne Pit is massive limestone rock of Mississippian Lodgepole Limestone and Devonian Hyrum Dolomite. During mining, all active high walls will be maintained at 40-foot high walls set back on a 15 foot batter with 25 foot benches. The overall slope of these benched high walls will be 1H:1V. ~~The thin layer of unconsolidated alluvium on top of the lithic formation will be sloped at a 2H:1V along the mine perimeter.~~ Geneva inspects all high walls two times per month. A more extensive high wall inspection is conducted yearly with the MSHA inspector. ~~A factor of safety of 1.25 or greater will be maintained at all times on slope stability. If problems occur with the planned 1H:1V slope, a geologic study will be performed to determine a safe slope configuration.~~

Deleted:

Please refer to R647-4-110.2, Reclamation Plan – High walls, for further information on slope stability during reclamation.

Erosion Control

There are no defined water channels within the existing disturbance area, or in area planned for future disturbance. However, the hillside being mined does shed water into the quarry area during precipitation events. Operations will be conducted to control water and erosion in disturbed, bonded areas. A retention basin capable of holding at least 5-acre/feet of water will

be created near the quarry entrance to contain any storm water runoff, initially. Later, as the quarry is developed, the floor will have a negative 1% grade towards the quarry face which will produce a depression that has capacity large enough to contain even 100-year storms. The quarry floor itself is graded to keep storm water away from material stockpiles, facilities areas, and storage areas.

Air Quality

Geneva has an Air Quality permit through the State of Utah, Department of Environmental Quality, Division of Air Quality (DAQ). This permit is described as follows: DAQP-005-06; DAQ ID 10843; Site ID-AFS 4900101; SIC Code 1442; Regulated as NSPS and Potential PM10 SIP Source

Public Health and Safety

Geneva Rock Products will minimize the hazards for public safety and welfare during operations. These measures include:

- No mining shafts or tunnels exist on the site. All buildings, silos, conveyors, and other facilities and equipment are signed to discourage unauthorized or accidental entry in accordance with MSHA regulations.
- A gate at the single access road on the south end of the quarry is locked when the site is not operating. The south and east sides of the permit area are fenced to prevent unauthorized entry into the permit area during both operating and non-operating hours.
- Trash, scrap metal and wood, and extraneous debris is disposed of in marked containers that are picked up monthly and disposed of at the Box Elder County Landfill on Little Mountain
- Although none are planned, any exploratory or other drill holes will be plugged and/or capping of as set forth in Rule R647-4-108.
- Appropriate warning signs are located at public access points, and every 300 feet along the south boundary.
- All deleterious or potentially deleterious material, such as fuel tanks and supplies of lubricants and oils, are kept in one bermed storage area to minimize and control adverse environmental effects.
- Used lubricating and hydraulic oils are collected in designated tanks and drums and held for collection by used oil distributors who process it into burner fuels.

R647-4-110. Reclamation Plan

110.1. Current Land Use and Post-Mining Land Use

Current land used of the property at and near the Corinne Pit includes mining of rock products and grazing of domestic live stock. Historical use of the property was the same, mining and grazing of livestock with the addition of some dispersed recreation.

The post-mining land use will remain consistent with historical use. The operator will reclaim the mine site area to a condition that is capable of supporting this land use. All buildings and structures will be removed, all roads will be reclaimed, except a two-track road to access and monitor the high wall, quarry floor and processing area during reclamation.

Although this plan addresses mining activities for the next fifteen years, mining is probable for the next 45 years. Buildings and mine infrastructure will remain past the fifteen year period until all future mining is completed. However, the current bond amount reflects sufficient funds to have all structures dismantled and removed along with re-grading and reseeding the entire potential disturbed area. If an agency or landowner later requests some of the structures and roads to remain after reclamation of the remainder of the mines, an amendment to the NOI and a change to the post-mining land use will be provided to DOGM for approval.

110.2. Reclamation of Roads, High walls, Slopes, Leach Pads, Dumps, Etc.

Roads

Approximately .7 miles of roads have been constructed on the south slope of the pit. All roads will be reclaimed at the end of mining activities except for the roughly 1.6 acres of two-tracks needed to monitor the quarry floor, high wall, and process area. The cost to bring these roads back to a two-track status is included in the surety calculations. Reclamation of roads will include ripping to remove compaction. Roads on flat or gently sloping ground will be graded to blend the road crown and ditches with surroundings. Roads cut into the quarry slopes will be ripped and graded to drain toward the cut side to minimize erosion and encourage vegetation establishment.

Roads will be topsoiled if materials are available (see Sub-section 110.5 for more information) using dump trucks to transport soil and dozers to spread soil. All roads will be seeded with the standard seed mix outlined in 110.5

The total area of roads to remain within the reclaimed quarry (assuming a 10' road path) will be approximately 1.6 acres. Figure 5 shows the approximate path of roads to be left in reclamation.

High walls

Mining is proposed to continue for 40-50 years or more at this site. A drainage ditch on the north side of the high wall will be left intact. High walls will be left at a 1H:1V angle or less, with 40 foot high walls set back 15 feet, and 25 foot benches (see **Figure 6**)

If mining were to cease prior to fully excavating the quarry, those high wall(s) disturbed by Geneva would be left at an overall slope of 1H:1V or flatter to assure slope stability using a benched configuration of 40' high walls on a 15' batter with 25' benches. The quarry floor will be graded to drain at a 1 percent slope toward the base of the high walls.

No significant areas are available for concurrent reclamation.

Slopes

The quarry floor will be mined down to approximately 4,225 feet elevation.

All slopes and floors within the disturbed, bonded area that are not part of the high wall will be ripped on the contour to relieve compaction and create a better seed bed (this is discussed further in Sub-section 110.5 below). The quarry floor will be graded to a 1 percent slope, draining toward the highwall area shown on Figures 5 and 5a.

Impoundments, Pits, and Ponds

The quarry will not be backfilled. The quarry will be reclaimed with an overall slope of 1H:1V or flatter to assure slope stability using a benched configuration of 40' high walls on a 15' batter with 25' benches. The floor will be reclaimed with a 1 percent slope to contain water against the high wall, where water will infiltrate into the sumps and/or evaporate. No impoundments or ponds will be left that require maintenance or monitoring.

The detention pond constructed at the batch plant will be backfilled upon reclamation using quarried material. This will be done as part of grading operations in this area. The reclaimed detention pond will be topsoiled and re-vegetated in the same manner as the rest of the mine, as explained under Subsection 110.5 below.

Drainages

No drainages will be constructed. Water coming off the high wall will be contained against the base of the high wall, rather than allowed to run off the mine property.

The native land outside the perimeter of the quarry area is on gravelly, vegetated outwash plain and is subject to overland flow rather than channelized flow.

Dumps, Shafts, Adits, and Leach Pads

There will be no dumps, shafts, adits, or leach pads created during mining, thus none of these features will need to be reclaimed.

Drill Holes

No drill holes outside of those required for blasting are anticipated. If any drill holes are required, they will be plugged and sealed as described in R647-4-108 above. There will be no drill holes left open upon reclamation.

110.3. Surface Facilities to be Left

No structures will be left. All facilities will be reclaimed. Approximately 1.6 acres of two-track roads will be maintained in reclamation to allow access and monitoring of the reclaimed mine.

A list of structures to be reclaimed is included in the Demolition section of the Surety Calculations located in Appendix F.

All facilities will be demolished after salvaging metals and removing insulation, tile, etc. Concrete will be broken up and buried on site. Other materials will be hauled to a licensed landfill and disposed.

110.4. Treatment, location, and Disposition of Deleterious Material

Potentially hazardous insulation, tile, and non-salvageable debris from demolition will be removed to a licensed landfill. All tanks will either be removed to a licensed landfill upon reclamation or sold. The surety calculations contained in Section 113 assume these items are disposed of at the Box Elder County Landfill located about 2 miles north of the Corinne Pit.

All conveyors, crushers, screens, concrete plant, asphalt plant and other equipment used for mining and processing of aggregate will be removed upon reclamation or sold. The surety calculations contained in Section 113 assume these items are disposed of at the Allied Metal Recycling center in north Ogden.

110.5. Re-vegetation Planting Program and Topsoil Re-distribution

After final shaping and grading of the quarry floor, concrete batch plant area, slopes, and roads within the disturbed area, surfaces will be ripped and/or scarified on the contour to relieve compaction.

Alfalfa	<i>Alfalfa</i>	0.44
Small Burnet	<i>Sanguisorba minor</i>	0.28
Forage Kochia	<i>Kochia Prostrata</i>	0.68
Wyoming Big Sagebrush	<i>Artemisia Tridentata</i> <i>Wyomingensis</i>	0.35
Fourwing Saltbush	<i>Atriplex Canescens</i>	1.40
	Total Rate to be Seeded	9.01

Seeding Method

The quarry floor, concrete batch and asphalt plant area, roads on flat or gently sloping surfaces, and the scale house area will be seeded using a range-type drill seeder.

Fertilization

Prior to spreading any topsoil or topdressing, stockpiles will be tested for organic matter, Nitrogen, Phosphorus, and Potassium. If these levels are low, 10 tons of composted manure per acre will be applied to the soil or topsoil substitute after it is spread. Soil amendment quantities will be approved by DOGM prior to application.

Other Re-vegetation Procedures

None.

R647-4-112 Variance

No variances are proposed with this application.

R647-4-113 Surety

The reclamation surety calculations are contained in Appendix F. A summary of the estimated costs of reclamation for phase I is included below.

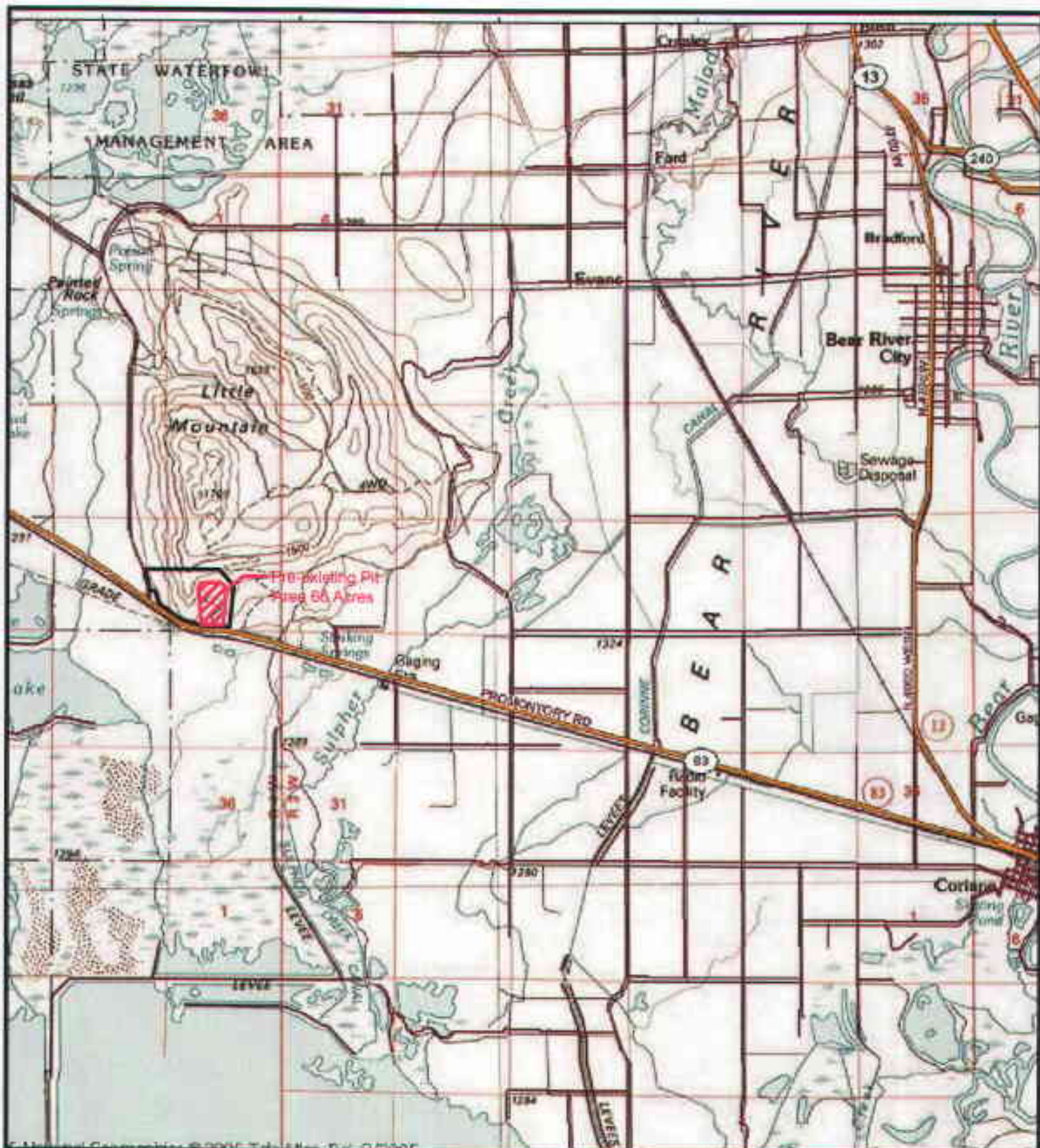
1. Demolition and removal of structures	\$450,963.00
2. Backfilling, grading, and contouring	\$337,037.00
3. Revegetation (preparation, seeding, mulching)	\$126,000.00
4. Indirect Costs	\$914,000.00
5. Mob/Demob	\$91,400.00

References

Natural Resources Conservation Service (NRCS 2008) Web Soil Survey: Eastern Box Elder County Area, Utah. Available online at: <http://websoilsurvey.nrcs.usda.gov/> Accessed Oct. 2008.

Utah Conservation Data Center, 2007. Sensitive Species List by County. Available online at: <http://dwr.cds.nr.utah.gov/ucdc/ViewReports/sscounty.htm> Accessed Oct. 2008.

Utah Division of Water Rights, 2007. Water Right Record Information. Available online at: <http://www.waterrights.utah.gov/wrinfo/query.asp> Accessed October 2008



Base from USGS 1:100,000 Scale Topographic map

Legend

- Geneva Property Boundary (T10 N, R4W, S.23, 24, 25)
- Pre-existing Gravel Pit Disturbance

Geneva Rock
Corinne Mine

Figure 1a
Location Map



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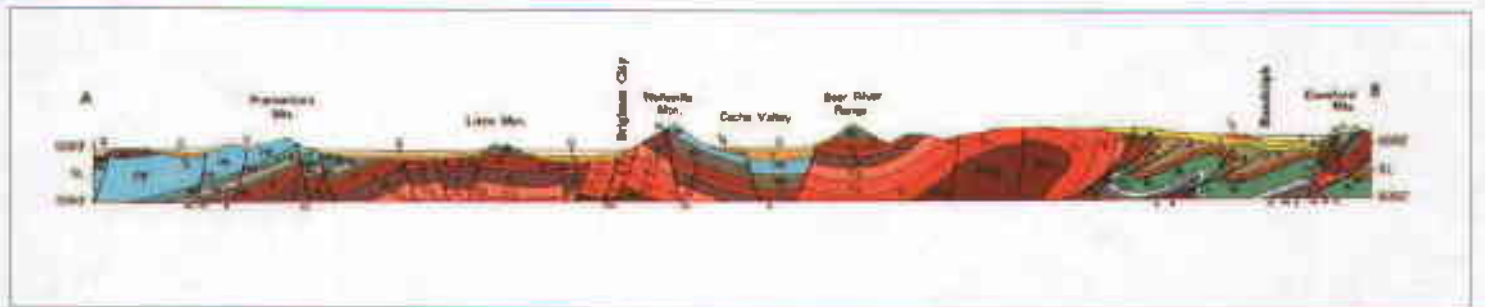
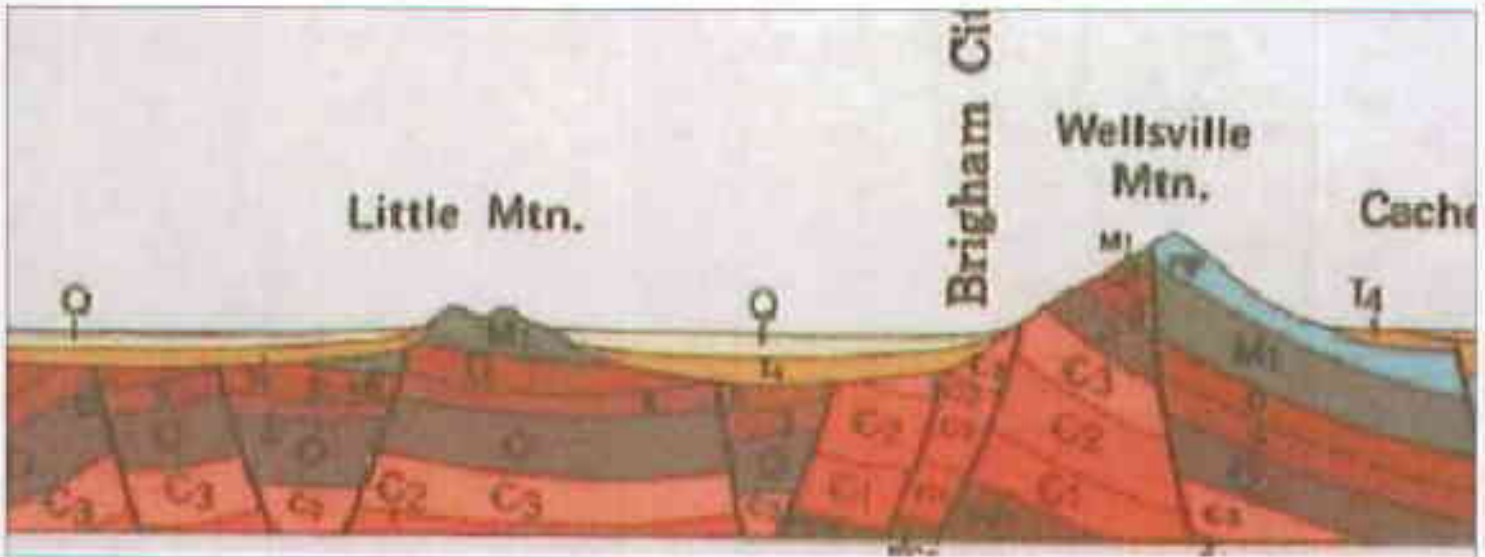
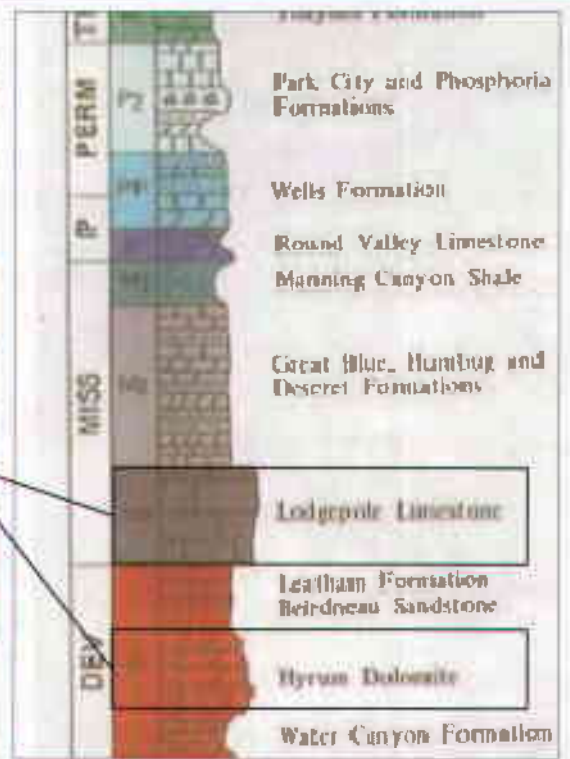
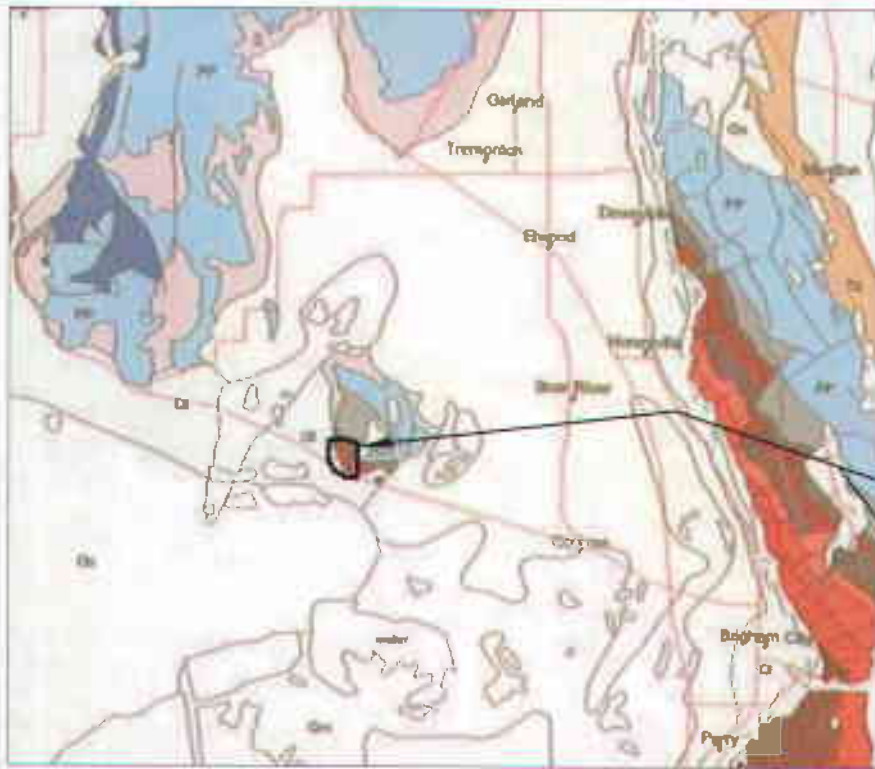
BRS

Date Drawn:

10/16/08

Scale:

1:5,800



Map Images Courtesy of Utah Geological Survey, Geologic Map of Utah, 2000

Legend

 Current Geneva Subdivision (T10 N,R4W, S.23,24,25)

Geneva Rock
Corinne Mine

Figure 9
Geology Map



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BRS

Date Drawn:

10/16/08

Scale: